

CLAIMS

1. A recombinant *Haemophilus* adhesion and penetration protein encoded by a nucleic acid selected from the group consisting of SEQ ID NO: 8, 10, 12, 14 and 16.
- 5 2. A recombinant *Haemophilus* adhesion and penetration protein which has a sequence selected from the group consisting of the sequence shown in SEQ ID NOS 7, 9, 11 and 13.
- 3 A recombinant nucleic acid that will hybridize under high stringency conditions to a nucleic acid selected from the group consisting of the sequence shown in SEQ ID NOS 8, 10, 12, 14 and 16 .
- 10 4. The nucleic acid of claim 3 comprising DNA having a sequence identical to that shown in the sequences selected from the group consisting of SEQ ID NO 8, 10, 12, 14 and 16.
5. An expression vector comprising transcriptional and translational regulatory nucleic acid operably linked to the nucleic acid of claim 3 or 4 encoding an *Haemophilus* adhesion and penetration protein.
- 15 6. A host cell transformed with an expression vector of claim 5.
7. A method of producing an *Haemophilus* adhesion and penetration protein comprising:
 - a) culturing a host cell transformed with an expressing vector comprising a nucleic acid encoding an *Haemophilus* adhesion and penetration protein; and
 - 20 b) expressing said nucleic acid to produce an *Haemophilus* adhesion and penetration protein.
8. A composition comprising a pharmaceutically acceptable carrier and an *Haemophilus* adhesion and penetration protein according to claim 1 or 2.
9. A composition according to claim 8 further comprising an adjuvant.
- 25 10 A method of inducing an immune response in a patient comprising administering to said patient the composition of claim 8, wherein said composition is in an amount effective to induce an immune response.
11. The method according to claim 10, wherein said immune response is generated against a strain of *Haemophilus* that is heterologous to the strain from which the *Haemophilus* adhesion and penetration protein is obtained.
- 30 12 A composition comprising an antibody capable of binding to an *Haemophilus* adhesion and penetration protein.
13. The composition according to claim 12, wherein said antibody is a monoclonal antibody.
14. A composition comprising a peptide selected from the group consisting of the peptides set forth in Table 1.

15. A composition according to claim 14 further comprising an adjuvant.
16. An antibody capable of binding to the peptide according to claim 14.